

IN THE CLAIMS

1       1. (Currently Amended) A method for designing a system on a target device utilizing a  
2 programmable logic devices (PLD) with an electronic automation design tool (EDA),  
3 comprising:

4               having the EDA tool determine a first location on the PLD to place a user defined logic  
5 region in response to user specified constraints for placement of the user defined logic region;  
6 and

7               having the EDA tool determine a second location to place the user defined logic region,  
8 wherein the second location is determined independent of the user specified constraints for  
9 placement.

1       2. (Previously Presented) The method of Claim 1, wherein having the EDA tool  
2 determine the second location is performed in response to the first location not satisfying design  
3 parameters.

1       3. (Previously Presented) The method of Claim 1, wherein having the EDA tool  
2 determine the second location is performed in response to the first location not satisfying the user  
3 specified constraints.

1       4. (Currently Amended) ~~The method of Claim 1, wherein having the EDA tool~~  
2 ~~determine the second location is performed~~A method for designing a system on a target device  
3 utilizing a programmable logic device (PLD), comprising:  
4               determining a first location on the PLD to place a user defined logic region in response  
5               to user specified constraints for placement of the user defined logic region; and

1        determining a second location to place the user defined logic region, wherein the second  
2        location is determined independent of the user specified constraints for placement in response to  
3        having a threshold number of options first locations generated.

1        5. (Previously Presented) The method of Claim 1, wherein having the EDA tool  
2        determine the second location is performed in response to a triggering event.

1        6. (Previously Presented) The method of Claim 1, further comprising determining  
2        positions to place components within user defined logic regions on the target device.

1        7. (Previously Presented) The method of Claim 6, wherein determining positions to  
2        place the components is an iterative procedure that includes:  
3            selecting positions;  
4            evaluating the positions with a cost function; and  
5            accepting the positions if the cost function yields a desired value.

1        8. (Previously Presented) The method of Claim 6, wherein determining the positions  
2        comprises removing constraints associated with the user defined logic regions.

1        9. (Previously Presented) The method of Claim 1, further comprising determining  
2        routing resources to allocate to user specified signals on the target device in response to user  
3        specified routing constraints.

1        10. (Original) The method of Claim 9, wherein determining routing resources is an  
2        iterative procedure that includes:  
3            selecting routing resources;

1       determining whether routing resource selections satisfy the user specified routing  
2       constraints; and  
3           re-selecting routing resources if the routing resource selections do not satisfy the user  
4       specified routing constraints.

1       11. (Previously Presented) The method of Claim 9, wherein re-selecting the routing  
2       resources comprises determining routing resources to allocate to the user specified signals on the  
3       PLD by removing the user specified routing constraints.

1       12. (Currently Amended) A method for positioning components of a system onto a  
2       target device utilizing a programmable logic devices (PLDs) using an electronic design  
3       automation tool, comprising:  
4           having the EDA tool determine a first location on the PLD to place a user defined logic  
5       region in response to user specified constraints for placement of the user defined logic region;  
6           determining whether the user specified constraint is a soft constraint in response to the  
7       system not satisfying timing; and  
8           having the EDA tool determine a second location to place the user defined logic region,  
9       wherein the second location is determined independent of the user specified constraints for  
10      placement if the user specified constraint is a soft constraint.

1       13. (Previously Presented) The method of Claim 12, wherein determining the first  
2       location to place the user defined logic region comprises:  
3           assigning an initial location for the user defined logic region;  
4           moving the user defined logic region to a new location; and  
5           evaluating a cost function associated with the user defined logic region in the new  
6       location.

1           14. (Original) The method of Claim 13, wherein evaluating the cost function comprises:  
2           determining a timing of the system associated with the user defined logic region in the  
3       new location; and  
4           determining routing resources requirements associated with the user defined logic region  
5       in the new location.

1           15. (Currently Amended) The method of Claim 12, further comprising determining  
2       possible locations to place a component in the user defined logic region ~~comprises~~that includes:  
3           assigning an initial location for the component in the user defined logic region; and  
4           evaluating a cost function as the user defined logic region and the component are moved.

1           16. (Previously Presented) The method of Claim 15, further comprising determining  
2       possible locations to move the component from the possible locations to place the component  
3       independent of the constraints associated with the user defined logic region.

1           17. (Currently Amended) The method of Claim 16, wherein determining possible  
2       locations to move the component is performed in response to the possible locations ~~to~~ not  
3       satisfying user specified constraints.

1           18. (Currently Amended) The method of Claim 12, wherein determining possible  
2       locations to move the component ~~the second location~~ is performed in response to having a  
3       threshold number of possible~~first~~ locations determined.

1           19. (Currently Amended) A method for designing a system on a programmable logic  
2       devices (PLDs) using an electronic design automation (EDA) tool, comprising:

1 having the EDA tool determine routing strategies for routing signals on the PLDs in  
2 response to user specified routing constraints that pertain to categories of routing resources to  
3 use; and

4 having the EDA tool determine additional routing strategies for routing the signals on the  
5 PLDs where the additional routing strategies are independent of the user specified routing  
6 constraints.

1 20. (Original) The method of Claim 19, wherein determining routing strategies for  
2 routing the signals on the PLDs in response to user specified routing constraints comprises:  
3 selecting routing resources for a user specified signal on the PLDs in response to the user  
4 specified routing constraints; and  
5 selecting routing resources for a non-user specified signal on the PLDs without utilizing  
6 the user specified routing constraints.

1 21. (Original) The method of Claim 19, wherein determining additional routing  
2 strategies for routing the signals comprises selecting routing resources for the user specified  
3 signal on the PLDs independent of the user specified routing constraints.

1 22. (Original) The method of Claim 19, wherein determining additional routing  
2 strategies for routing the signals is performed in response to the routing strategies not satisfying  
3 user specified routing constraints.

1 23. (Original) The method of Claim 19, wherein determining additional routing  
2 strategies for routing the signals is performed in response to the routing strategies not satisfying  
3 design parameters.

1        24. (Original) The method of Claim 19, wherein determining additional routing  
2 strategies for routing the signals is performed in response to a threshold number of routing  
3 strategies being determined.

1        25. (Previously Presented) A machine-readable medium having stored thereon  
2 sequences of instructions, the sequences of instructions including instructions which, when  
3 executed by a processor, causes the processor to perform:

4              determining a first location on a programmable logic device (PLD) to place a user  
5 defined logic region in response to user specified constraints for placement of the user defined  
6 logic region; and

7              determining a second location to place the user defined logic region wherein the second  
8 location is determined independent of the user specified constraints for placement.

1        26. (Previously Presented) The machine-readable medium of Claim 25, wherein  
2 determining the second location is performed in response to the first location not satisfying  
3 design parameters.

1        27. (Previously Presented) The machine-readable medium of Claim 25, wherein  
2 determining the second location is performed in response to the first location not satisfying the  
3 user specified constraints.

1        28. (Currently Amended) ~~The machine readable medium of Claim 25, wherein~~  
2 ~~determining the second location is performed~~A machine-readable medium having stored thereon  
3 sequences of instructions, the sequences of instructions including instructions which, when  
4 executed by a processor, causes the processor to perform:

1        determining a first location on a programmable logic device (PLD) to place a user  
2        defined logic region in response to user specified constraints for placement of the user defined  
3        logic region; and  
4        determining a second location to place the user defined logic region wherin the second  
5        location is determined independent of the user specified constraints for placement in response to  
6        having a threshold number of first locations determined.

1        29. (Previously Presented) The machine-readable medium of Claim 25, wherein  
2        determining the second location is performed in response to a triggering event.

1        30. (Currently Amended) The machine-readable medium of Claim 25, further  
2        comprising determining locations to place components within user-defined logic regions on the  
3        target device.

1        31. (Currently Amended) The machine-readable medium of Claim 30, further  
2        comprising determining locations to place the components on the target device by removing  
3        constraints associated with the user-defined logic regions.

1        32. (Previously Presented) The machine-readable medium of Claim 25, further  
2        comprising determining routing resources to allocate to user specified signals on the target  
3        device in response to user specified routing constraints.

1        33. (Previously Presented) The machine-readable medium of Claim 32, further  
2        comprising ignoring the user specified routing constraints.